The Samurai Crab

by Joel W. Martin

Morning arrived cold and gray, with the waves promising more storms to come. It was April, in the year 1185, and the southern Inland Sea of Japan was no place for the meek. Ships stirred restlessly, and troubled voices carried softly across the waters in the small inlet named Dan-no-ura. The Emperor Antoku looked out from his flagship across the sea and knew that his death, and the death of his people, was approaching from the east. For nearly fifty years now the struggle had raged between his people, the Heike or House of Taira, and the warriors known as the Genji, or Miyamoto Clan, from the eastern provinces. At stake was nothing less than total control of the world as they knew it.

Antoku no longer held out any hope for survival. All omens had been wrong. The previous day had seen an enormous school of dolphin approaching his flagship, marked by grey banners with the stylized butterfly logo of the House of Taira. The Royal Diviner had been requested. His prediction: that if the school of dolphin divided and went around the ship, the Heike would survive, but if they dived beneath the waves, so too would the Heike warriors go down in defeat.

The dolphin had dived before even reaching the Emperor's vessel.

Antoku surveyed the scene around him. One thousand ships made up the Heike fleet, and each bore samurai trained for battle. But across the waves, approaching as one with the oncoming storm, were three thousand ships of the Genji. Antoku turned, his very small hands clutching the dove-grey robe that denoted his status, his long black hair moving in the damp wind. Behind him was the man of the second order, who approached him and wrapped his small body in her own flowing robe. “Grandmother, where are you taking me?” asked the Emperor, to which she replied, “There is another kingdom, beneath the waves….” And clutching the boy — for the Emperor was but nine years old — to her breast, she disappeared over the side of the ship, taking with her the last hope of the House of Taira. The Heike warriors, hideously transformed after the massacre, in coastal Japanese villages. But what lives on the floor of the Sea of Japan and surrounding bodies of water are not people, but crabs. According to the myth, these crabs are the ghosts of the Heike warriors, hideously transformed after their loss and doomed to walk the abyss for all time.

How could such a myth originate? Actually, it is easy to see. These crabs, whose scientific name was until recently Dorippa japonica, have a pattern of grooves and ridges on their backs that bear an uncanny resemblance to a human face; more precisely, they resemble the grimacing face of a samurai warrior. These are samurai crabs, known throughout the Orient as Heike-gani, the crab of the Heike.

I do not know when this myth first appeared. There is no mention of samurais turning into crabs in the versions of the Heike monogatari I have seen. But the legend must be fairly old; although the exact date of the painting depicting this event on the opposite page is not known, the Japanese artist, Utagawa Kuniyoshi, lived from 1797 to 1861. Furthermore, the stylization of this painting indicates that the story on which it was based was not new but had been handed down from previous
The samurai crab, *Dorippa* (now *Heikea*) japonica, showing on its back the remarkable resemblance to a scowling human face formed by grooves and elevated areas of the carapace (shell). This specimen is a male collected in Ariake Bay, off Kyushu, Japan, in 1968, on loan to the Natural History Museum from the Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands. Total width across the crab's back at its widest point (the "cheeks" of the face) is only 20.4 mm (0.8 inches). The last two legs on each side are reduced and claw-like for carrying objects. In this specimen, the second walking leg on the left side has been lost and regenerated, accounting for its small size compared to the right side legs.

Generations. And there are other old references pointing out the similarity of these crabs to human faces. In the Wakan-sansai-zue, the second encyclopedia published in Japan (1716), there are illustrations of *D. japonica*, which at the time was called either Takebun-gani, after Takebun, who came to Japan at the time of the Mongolian invasion and was drowned, or Shimamura-gani, after Danjo Shimamura, slain in the fourth year of the Kyoroku era and whose spirit was said to hover about the area. Indeed, it seems likely that the man-crab legend even precedes the date of the battle of Dan-no-mura, and was merely fitted to those events later, rather than being newly created at that time. And it is not difficult to see how fishermen around the Sea of Japan could see these crabs and envision the reincarnation of the lost Heike samurai. The red coloration of these crabs in life was also thought to reflect the Heike, as some versions of the *Heike monogatari* list red as the color of the flags of the House of Taira.

The second myth is that the crabs did not always look like they do now. Rather, the story goes, the resemblance to a human face, and especially to a samurai face, was created by artificial selection. Artificial selection is man's version of natural selection, where certain lineages survive not because of the forces of nature, but by man's intervention. Examples are very common; all domestic animals are the result of purposeful intervention (selective breeding) by man. According to the samurai crab story, Japanese fisherman, who have plundered these waters for thousands of years, would throw back any crab caught in their net if it resembled a human face, especially the face of the long lost Heike, keeping and eating only those crabs that did not make them feel cannibalistic. Many years of throwing back faced crabs and weeding out (eating) normal crabs resulted in the faced crabs being the major contributors to the gene pool, with man in the role of a selective force shaping subsequent populations: a very pretty example of evolution over a relatively short time span, and one of sufficient interest to have filtered down to popular articles on natural history. In fact, the well-known evolutionary biologist Julian Huxley (grandson of the more famous T. H. Huxley, who was known as Charles Darwin's "bulldog" for his adamant support of Darwin's then-controversial ideas about natural selection, and brother of the novelist Aldous Huxley) wrote about these crabs in *Life* magazine in 1952, stating that "the resemblance of *Dorippa* to an angry Japanese warrior is far too specific and far too detailed to be accidental; it is a specific adaptation which can only have been brought about by means of natural selection operating over centuries of time. It came about because those crabs with a more perfect resemblance to a warrior's face were less frequently eaten than the others." More recently, samurai crabs were used to illustrate the power of artificial selection in Carl Sagan's popular 1980 book *Cosmos*. Both accounts make for interesting reading, and tell the story of crabs turned into samurai likenesses by human hands.

Interesting reading, but it isn't true. The grooves and ridges on the backs of crabs have specific purposes and are not merely decorative. The grooves are external indications of supportive ridges, called apodemes, inside the crab's carapace that serve as sites for muscle attachment. Elevated areas between these grooves allow for an increase in internal space, so that the various
Although Heikea japonica is the best known of the “faced” crabs, several other species have a carapace (shell) that bears a likeness to a human face when viewed from above. On the top is Paradorippe granulata, a northwestern Pacific species that, like H. japonica, bears an obvious resemblance to the scowling face of a samurai warrior. In the center is Dorippe sinica, known only from Japan, a species with markings that are similar to, but less distinct than, those of H. japonica and P. granulata. On the bottom is the northeastern Atlantic Corystes cassivelaunus, a species unrelated to the dorippids (it is a member of the family Corystidae) but nevertheless bearing markings slightly reminiscent of a human face on its back because of similar functional constraints of the carapace. Perhaps because the similarity to a human face is weak, one of the common names for this species is “masked crab.” Specimens courtesy of Dr. Lipke Holthuis and C.H.J.M. Fransen, National Museum of Natural History, Leiden, The Netherlands. Photos by Dick Meier.